REMARKS / DISCUSSION OF ISSUES

The present amendment is submitted in response to the Non-Final Office Action mailed February 16, 2011. In view of the amendments above and the remarks to follow, reconsideration and allowance of this application are respectfully requested.

Status of the Claims

Upon entry of the present amendment, claims 1-8, 12-13 and 26 will remain pending in this application. Claims 1 and 20 have been amended. Applicants respectfully submit that no Previously Presented matter is added by the present amendments.

Interview Summary

Applicants appreciate the courtesy granted to Applicant's attorney, Michael A. Scaturro (Reg. No. 51,356), during a telephonic interview conducted on Thursday, May 12, 2011. During the telephonic interview, each of the 112 and 103 rejections were discussed. Applicant's Attorney proposed amendments to independent claims 1 and 20 which appear to overcome the stated rejections.

Claim Rejections under 35 U.S.C. § 112, first paragraph

Claims 5-6 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The rejection of claims 1-7, 12-13 and 20-26 are understood to be based on the premise that the specification disclosure as originally filed fails to provide support for "a coating composition for use in the formation of a "transparent removable protective layer" that "could be altered the solubility thereof" by flood exposure at different wavelengths to electromagnetic wavelength used in the projecting step" or altering the solubility thereof by post-exposure bake process, and dissolving such as presented in claim 1, 20. Applicants respectfully traverse the rejections. Support can be found throughout Applicant's specification, for example, at par. 19, which is reproduced below for convenience.

> [0019] **The transparent layer** can be **removed** by any suitable chemical or mechanical method or, for example, by a heat treatment step. Mechanical methods of removing the transparent layer can be by cleavage. Chemical methods include wet or drying etching. Combinations of chemical and mechanical methods can be used, e.g. Chemical Mechanical Polishing. A particularly preferred method is the transparent

layer being **partly or completely dissolved by a fluid**, which could be the same fluid as is used for developing the resist. This can make the process easier since no additional removal step is needed. Properties of the transparent layer may be changed by incidence of radiation and/or by heat treatment. **The solubility of the transparent layer may be altered after the immersion in the immersion fluid**. This can be particularly useful if the immersion fluid and the developer are both water based for example. The radiation used to change the solubility properties preferably has a different wavelength than that used to pattern any underlying photosensitive layer(s). **For example, another such additional feature is the altering being carried out by a post exposure bake process or that the altering is carried out by a flood exposure at a wavelength different from that of the actinic radiation used for patterning photosensitive layer(s).**

Accordingly, withdrawal of the rejections under 35 U.S.C. § 112, first paragraph is respectfully requested.

Claim Rejections under 35 U.S.C. § 112, first paragraph

Claims 1-8, and 12-13 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The rejection of claims 1-8 and 12-13 are understood to be based on the premise that the specification disclosure as originally filed fails to provide support for a "particular wavelength" and "at different wavelength to the particular wavelength of the projected electromagnetic radiation to ensure that the protective transparent layer (L4) is dissolvable in claim 1. Applicants respectfully traverse the rejections. Support can be found throughout Applicant's specification, for example, at par. 47, which is reproduced below for convenience.

[0047] The present invention will be described mainly with reference to altering the solubility of a transparent protective layer but the present invention is not limited to this method. The transparent layer can be removed by any suitable chemical or mechanical method or, for example, by a heat treatment step. Mechanical methods of removing the transparent layer can be by cleavage. Chemical methods include wet or drying etching. Combinations of chemical and mechanical methods can be used, e.g. Chemical Mechanical Polishing. The particularly preferred method is the transparent layer being partly or completely dissolved by a fluid, which could be the same fluid as is used for developing the resist. This can make the process easier since no additional removal step is needed. Properties of the transparent layer may be changed

by incidence of radiation and/or by heat treatment. The solubility of the transparent layer may be altered after the immersion in the immersion fluid. This can be particularly useful if the immersion fluid and the developer are both water based for example**. The radiation used to change the solubility properties preferably has a different wavelength than that used to pattern any underlying photosensitive layer(s). For example, a post exposure bake process or a flood exposure at a different wavelength to the actinic radiation used for patterning photosensitive layer(s) may be used to change the solubility characteristics.**

Applicants have elected to amend the independent claims to recite a **first** wavelength in substitution for a **particular** wavelength and a **second** wavelength in substitution for a **different** wavelength.

Accordingly, withdrawal of the rejections under 35 U.S.C. § 112, first paragraph is respectfully requested.

Claim Rejections under 35 U.S.C. §112, second paragraph

Claims 1-8, 12-13 and 20-26 were rejected under 35 U.S.C. §112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The rejection of claims 1-8, 12-13 and 20-26 is understood to be based on the premise that in claim 1 it is unclear as to which is to be considered as "surface (L1,L2)" and which considered as "substrate L1" and "photosensitive layer L2", i.e., which surface is irradiated, which surface is immersed in the immersion fluid. Claim 1 has been amended in a manner which is believed to overcome the rejection. Accordingly, withdrawal of the rejections under 35 U.S.C. § 112, second paragraph is respectfully requested.

Claims 1-8, 12-13 and 20-26 were further rejected under 35 U.S.C. §112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The rejection of claims 1-8, 12-13 and 20-26 is understood to be based on the premise that the processing steps presented in the claims are unclear. Claim 1 has been amended in a manner which is believed to overcome the

rejection. Accordingly, withdrawal of the rejections under 35 U.S.C. § 112, second paragraph is respectfully requested.

Claim Rejections under 35 USC 103

In the Office Action, Claims 20-26 stand rejected under 35 U.S.C. §103 (a) as being obvious over U.S. Patent Application No. 2005/0123863 ("Chang"). Applicant respectfully traverses the rejections.

Claims 20-26 are allowable

Independent Claim 20 has been amended herein to better define Applicant's invention over Chang. Claim 20 now recites limitations and/or features which are not disclosed by Chang. Therefore, the cited portions of Chang do not anticipate claim 20, because the cited portions of Chang do not teach every element of claim 20. For example, the cited portions of Chang do not disclose or suggest, "*dissolving the removable protective transparent layer (L4) in a developer solution thereby exposing the photosensitive layer (L2) to the developer solution, thus allowing the photosensitive layer (L2) to be developed",* as recited in claim 20.

In the Office Action, it is suggested that the claimed invention is not related to the complete removal of the removable protective layer. The Examiner states that the step of "dissolving the removable protective transparent layer", encompasses the removal portion taught in Chang. Applicants amended claim recitation now more particularly and precisely claims that a complete removal of the protection layer is achieved by dissolving the transparent layer in the developer solution.

Further, it is suggested in the Office Action that the thickness of the layer used in Chang can include any thickness including that of the claimed invention. Applicants respectfully disagree. It is respectfully submitted that the thickness of the protective layer of the invention is <u>not obvious</u>, but instead constitutes a critical range. Support may be found, for example, in Applicant's specification at par. 15, which discloses that the total required thickness of the removable transparent layer should be such that the Strehl Ratio is not less than 95%. Par. 15 is reproduced below.

> [0015] The thickness of the removable transparent layer is preferably such that certain imperfections in the fluid are out of focus as projected onto the surface. It is estimated that the total required thickness of the removable transparent layer should be such that the Strehl Ratio is not less than 95%. The Strehl ratio indicates the difference between intensity of an ideal and a disturbed Point Spread Function (PSF). The disturbed PSF is caused by a particle or bubble. A critical situation is when the particle or bubble is as close as possible to the substrate to be processed, for example when the particle or bubble is touching the surface of the removable transparent layer. The thickness of the removable transparent layer is 200 nm or greater, e.g. 500 nm or greater, 1 micron or greater or 5 micron or greater. The required thickness will depend upon the expected size of the particles or bubbles as well as the optical characteristics of the optical system. Typically the immersion medium, whether gas or liquid, has an index of refraction at the wavelength of the radiation source which is higher than that of air/vacuum. For most practical purposes this is a liquid, preferably water.

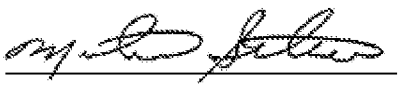
Hence claim 20 is allowable and claims 21-26 are allowable, at least by virtue of their respective dependence from claim 20.

Conclusion

In view of the foregoing amendments and remarks, it is respectfully submitted that all claims presently pending in the application, namely, Claims 1-8, 12-13 and 20-26 are believed to be in condition for allowance and patentably distinguishable over the art of record.

If the Examiner should have any questions concerning this communication or feels that an interview would be helpful, the Examiner is requested to call Mike Scaturro, Esq., Intellectual Property Counsel, Philips Electronics North America, at 516-414-2007.

Respectfully submitted,



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